

We claim:

1. A light source module comprising:  
a laser diode for emitting a laser beam;  
a circuit board including the laser diode, a driver  
circuit for the laser diode, and a connector for  
receiving a power supply for driving the laser diode from  
an electric power source;

means for shaping the laser beam emitted by the  
laser diode; and

a housing made of electrically insulating material  
for containing the beam shaping means and the circuit  
board except for a portion of the circuit board where the  
connector is mounted.

2. A light source module according to claim 1, in  
which the housing is made of molded resin.

3. A light source module according to claim 1, in  
which the beam shaping means comprising a lens for  
condensing the laser beam emitted by the laser diode; and  
an aperture plate which including an aperture  
through which the laser beam propagate from the lens; and  
the light source module further comprising a mount  
for securing the circuit board inside of the housing, the  
mount including a bore extending through the mount to  
open to the diode laser on the circuit board;

a lens holder for holding the lens and the aperture  
plate to align the aperture with the optical axis of the  
lens; and

the lens holder being fitted into the bore of the  
mount to slide along the bore, the movement of the lens  
holder within the bore along the longitudinal axis of the  
bore adjust the position of the focal point of the laser  
beam.

4. A light source module according to claim 3

further comprising means for locking the lens holder relative to the mount.

5 5. A light source module according to claim 1, in which the circuit board includes means for adjusting the output of the laser diode.

6. A light source module comprising:  
a laser source;

10 a circuit board, for driving the laser source, including a driver circuit for the laser source, and a connector for receiving a power supply for driving the laser diode from an electric power source; the laser source is mounted to the circuit board; and

15 a housing, made of electrically insulating material, for enclosing a portion of the circuit board where the laser source is mounted, the housing including means for positioning the circuit board relative to the housing.

20 7. A light source module according to claim 6, further comprising means for positioning the laser source relative to the housing.

8. A scanning apparatus comprising:

25 a light source module;

an optical unit including means for receiving a beam from the light source module and reflecting the beam to provide the scanning beam, means for reflecting the scanning beam to provide a plurality of scanning lines outside of the housing, means for receiving a return beam reflected by an article are sealingly contained, and a housing for enclosing means for receiving and reflecting the beam, means for reflecting the scanning beam, and means for receiving the return beam; and

30 the housing including an arrangement for mounting the light source module outside of the housing and an aperture through which the beam entering the housing.

9. A scanning apparatus according to claim 8 further comprising a damper member of resilient material provided between the optical unit and the light source module to prevent dust from entering the housing.

10. A scanning apparatus according to claim 9 in which a glass plate is provided to close the aperture in the housing through which the beam enters the housing from the light source module.

11. A scanner for emitting a scanning beam, comprising:

a light source for emitting a light beam;

an optical unit including an optical element for receiving the light beam from the light source and for producing a scanning beam, and a housing for enclosing the optical element, the housing including an aperture through which the light beam enters the housing; and

the light source being mounted to the exterior of the housing of the optical unit to direct the beam to the optical elements within the housing through the aperture.

12. A scanner according to claim 11, in which the optical unit including a scanning mirror for producing a scanning beam, a plurality of mirrors for reflecting the scanning beam and for dividing the scanning beam into first and second sets of scanning beam segments, an optical receiver element for receiving the return beam reflected by a bar code to produce an electrical signal responsive to the return beam, and a housing for enclosing the scanning mirror, the plurality of mirrors, and the optical receiver element, the housing including an aperture, and first and second openings through which the first and second sets of scanning beam segments propagate outside of the housing to provide first and second sets of scanning lines outside of the scanner, the light source being secured to the exterior of

the housing to direct the light beam to the scanning mirror through the aperture provided in the housing.

5 13. A scanner according to claim 12, in which the scanner mirror is a rotating polygonal mirror.

10 14. A scanner according to claim 11, in which the optical unit including a scanning mirror for producing a scanning beam, a plurality of mirrors for reflecting the scanning beam and for dividing the scanning beam into a set of scanning beam segments, an optical receiver element for receiving the return beam reflected by a bar code to produce an electrical signal responsive to the return beam, and a housing for enclosing the scanning mirror, the plurality of mirrors, and the optical receiver element, the housing including an aperture, and an openings through which the set of scanning beam segments propagate outside of the housing to provide a set of scanning lines outside of the scanner,

15 20 the light source being secured to the exterior of the housing to direct the light beam to the scanning mirror through the aperture provided in the housing.

25 15. A scanner according to claim 14, in which the scanner mirror is a rotating polygonal mirror.

16. A bar code scanner for reading a bar code, comprising:

30 a light source for emitting a light beam;  
an optical unit including a scanning mirror for producing a scanning beam, a plurality of mirrors for reflecting the scanning beam and for dividing the scanning beam into first and second sets of scanning beam segments, an optical receiver element for receiving the return beam reflected by a bar code to produce an electrical signal responsive to the return beam, and a housing for enclosing the scanning mirror, the plurality

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of mirrors, and the optical receiver element, the housing including an aperture, and first and second openings through which the first and second sets of scanning beam segments propagate outside of the housing to provide first and second sets of scanning lines outside of the scanner, the light source being secured to the exterior of the housing to direct the light beam to the scanning mirror through the aperture provided in the housing.

17. A bar code scanner according to claim 16, in which the scanner mirror is a rotating polygonal mirror.

18. A bar code scanner for reading a bar code, comprising:

a light source for emitting a light beam;  
an optical unit including a scanning mirror for producing a scanning beam, a plurality of mirrors for reflecting the scanning beam and for dividing the scanning beam into a set of scanning beam segments, an optical receiver element for receiving the return beam reflected by a bar code to produce an electrical signal responsive to the return beam, and a housing for enclosing the scanning mirror, the plurality of mirrors, and the optical receiver element, the housing including an aperture, and an openings through which the set of scanning beam segments propagate outside of the housing to provide a set of scanning lines outside of the scanner, the light source being secured to the exterior of the housing to direct the light beam to the scanning mirror through the aperture provided in the housing.

19. A bar code scanner according to claim 18, in which the scanner mirror is a rotating polygonal mirror.

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